

PHASE CHANGE MEMORY CELL ON SILICON-ON-INSULATOR SUBSTRATE

Abstract

The present invention includes a method for forming a phase change material memory device and the phase change memory device produced therefrom. Specifically, the phase change memory device includes a semiconductor structure including a substrate having a first doped region flanked by a set of second doped regions; a phase change material positioned on the first doped region; and a conductor positioned on the phase change material, wherein when the phase change material is a first phase the semiconductor structure operates as a bipolar junction transistor, and when the phase change material is a second phase the semiconductor structure operates as a field effect transistor.